

Table 4.3 – Projections of Renewable Electricity Carbon Dioxide Emissions Savings

(Million Metric Tons Carbon Equivalent per Year)

	Data Sources	Projections				
		<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>
Renewable Energy						
Geothermal	AEO2005 - Reference Case	2.32	2.45	2.97	3.75	5.03
	AEO2005 - High Renewables		2.45		6.79	8.54
	EERE GPRA FY05		8.54	10.60	11.80	13.68
Wind	AEO2005 - Reference Case	4.53	5.14	5.05	5.19	5.30
	AEO2005 - High Renewables		5.14		5.94	6.84
	EERE GPRA FY05		9.35	20.45	38.52	38.32
Solar ¹	AEO2005 - Reference Case	0.21	0.39	0.43	0.55	0.87
	AEO2005 - High Renewables		0.39		0.61	1.03
	EERE GPRA FY05		0.44	1.51	3.65	5.18
Hydroelectric	AEO2005 - Reference Case	56.63	60.82	56.59	50.39	47.08
	AEO2005 - High Renewables		60.82		50.39	47.08
	EERE GPRA FY05		60.12	56.10	50.43	47.12
Biomass/Wood (without cogeneration)	AEO2005 - Reference Case	3.97	5.48	5.54	5.32	5.73
	AEO2005 - High Renewables		5.88		5.53	6.76
	EERE GPRA FY05		4.25	4.12	3.68	3.76
MSW and LFG	AEO2005 - Reference Case	5.12	5.53	5.23	4.70	4.41
	AEO2005 - High Renewables		5.53		4.76	4.47
	EERE GPRA FY05 ²		5.74	5.60	5.14	4.83
Total Renewable Energy	AEO2005 - Reference Case	78.72	86.51	82.50	76.45	75.04
	AEO2005 - High Renewables		87.34		81.85	83.08
	EERE GPRA FY05 ³		86.64	89.23	92.57	96.04
Heat Rate	Btu/kWh	10,796	10,593	9,019	8,266	7,891
Carbon Coefficient	MMTCE/Tbtu	0.01783	0.01875	0.02048	0.01988	0.01944

Sources: Generation data: *EIA Annual Energy Outlook 2005*, DOE/EIA-0383 (04) (Washington, D.C., February 2005), Tables A16 and F8. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Projected Benefits of Federal Energy Efficiency Programs: FY2005 Budget Request*, prepared by the National Renewable Energy Laboratory, NREL/TP-620-36407 (May 2004).

Carbon emission coefficients and heat rates: U.S. Department of Energy, GPRA2003 Data Call, Appendix B, pages B-13 and B-16, (September 14, 2001).

Notes:

Carbon Emissions Savings based on calculation: $(10^9 \text{ kWh}) * (\text{Btu/kWh}) * (\text{TBtu}/10^{12} \text{ Btu}) * (\text{MMTCE}/\text{TBtu})$

¹ Solar thermal and photovoltaic energy.

² EERE does not have an R&D program for LFG/MSW and thus are not included in GPRA projections

³ Biomass, MSW and LFG are not included in the portfolio value. The portfolio values do not equal the summed values of the individual programs, as the portfolio analysis accounts for program interactions and micro-price feedback effects.